Appendix B - Avoidance and Minimization Measures

For some projects occurring near or within suitable habitat, it will be necessary to implement AMMs to avoid or minimize impacts to the point of insignificant/discountable for projects to be included in this programmatic consultation. For these projects to be covered by this programmatic consultation, specific AMMs related to the bats will be implemented where applicable. These include:

Tree AMMs
Unless surveys document that the species are not present, these AMMs will be applied, as appropriate. The word "trees" as used in the AMMs refers to trees that are suitable habitat[1] for each species with their range.

Tree Removal AMM 1. Modify all phases/aspects of the project (e.g., temporary work areas, alignments) to avoid tree removal in excess of what is required to implement the project safely. Note: Tree Removal AMM 1 is an avoidance measure. If this cannot be applied, projects may still be NLAA as long as removal is in winter and avoids known roosts.

Tree Removal AMM 2. Apply time of year (TOY) restrictions for tree removal[2] when bats are not likely to be present.

Tree Removal AMM 3. Ensure tree removal is limited to that specified in project plans. Install bright orange flagging/fencing prior to any tree clearing to ensure contractors stay within clearing limits. Ensure that contractors understand clearing limits and how they are marked in the field.

Tree Removal AMM 4. Do not cut down documented Indiana bat or NLEB roosts (that are still suitable for roosting) or documented foraging habitat any time of year.

Bridge and Structure AMMs
Unless inspections or surveys have occurred to document that the species are not present in a bridge or structure, the following AMMs should be implemented as appropriate:

Bridge AMM 1. Perform any bridge repair, retrofit, maintenance, and/or rehabilitation work during the winter hibernation period (contact your local Service field office for exact dates). If bridge repair, retrofit, maintenance, and/or rehabilitation work must be performed outside of the winter hibernation period, then consider one of the other Bridge AMMs below:

[1] See the Service's current summer survey guidance for our latest definitions of suitable habitat.
[2] Coordinate with local Service field office for appropriate dates.

Bridge AMM 2. If construction activity is planned during the active season, perform a final inspection of the bridge no more than 7 days prior to the start of construction activity to ensure bats have not started to use the area of the bridge proposed for work after the original inspection.

Bridge AMM 3. Bridge repair, retrofit, maintenance, and/or rehabilitation work outside of pup season (June 1- July 31) will occur in the evening while the bats are feeding, starting one hour after sunset, and ending one hour before daylight excluding the hours between 10 p.m. and midnight[3]and keep the light localized.

Bridge AMM 4. If bridge repair, retrofit, maintenance, and/or rehabilitation work alters the bridge during the inactive season then ensure suitable roosting sites remain after the work. Suitable roosting sites may be incorporated into the design of the new bridge.

Structure AMM 1. If the goal of the project is to exclude bats, coordinate with your local Service field office and follow upcoming Acceptable Management Practices for Bat Control Activities in Structures guidance document.

Structure AMM 2. Perform maintenance and/or repair work during the winter hibernation period (contact your local Service field office for exact dates).

Structure AMM 3. If maintenance and/or repair work will be performed outside of the winter hibernation period, determine if work will occur in an area with roosting bats. If so, coordinate with your local Service field office. If there is observed bat activity (or signs of frequent bat activity), the transportation agency will avoid maintenance activity bat exclusions or similar structure alteration during the active season unless there are concerns about human health/safety/property. The agency will coordinate with a nuisance wildlife control officer and the local Service field office.

Lighting AMMs

Lighting AMM 1. Direct temporary lighting away from suitable habitat.

Lighting AMM 2. Use downward-facing, full cut-off[4] lens lights, and direct lighting away from suitable habitat when installing new or replacing existing permanent lights.

Dust Control AMM

To minimize potential effects on air quality, construction contractors will use water trucks and other proactive measures to prevent discharges of dust into the atmosphere that may

[3] Keeley and Tuttle (1999) indicated peak night roost usage is between 10:00 p.m. to midnight.

[4] http://www.lithonia.com/micro_webs/nighttimefriendly/cutoff.asp

unreasonably interfere with the public and adjacent properties or may be harmful to plants and animals.

Water Quality AMMs

To minimize potential indirect effects on bats or aquatic insects which may provide forage, adverse effects to aquatic resources will be minimized through strict adherence to the SWPPP.[5]

Typical SWPPPs will provide a detailed description of the pollution prevention measures that will be used to control litter, construction chemicals, and construction debris from becoming a pollutant source in stormwater discharges. In addition, SWPPPs will describe specific actions to be taken during active and post-construction phases of the project that will minimize adverse impacts to water quality from erosion and sedimentation and will include a spill prevention response plan. Typical elements of a SWPPP include the following items:

Water Quality AMM 1. Erosion Control–The project will incorporate temporary erosion control structures to minimize erosion. Erosion control measures, such as silt fence, temporary seeding, rock checks, and erosion control blankets, will be incorporated as a first step in construction and maintained throughout active construction activities. In addition, U.S. DOT often requires permanent stormwater quality practices, such as stormwater ponds, wetlands, or detention basins for projects that require coverage under the SPDES General Permit.

Water Quality AMM 2. Sediment Control–In addition, the SWPPP will describe the temporary and permanent structural and vegetative measures to be used for soil stabilization, runoff control, and sediment control for each stage of the project from initial land clearing and grubbing to project close-out, including a description of structural practices to divert flows from exposed soils, store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site to the degree attainable.

Water Quality AMM 3. Roadside Drainage–Where feasible, vegetated swales will be used to assist with filtering sediment and other pollutants before it reaches streams and adjacent wetlands.

Water Quality AMM 4. Revegetation–All temporarily disturbed areas created from construction activities will be revegetated following State DOT/FRA specifications. Permanent revegetation will occur after sections are completed and consist of a variety of grasses and forbs, including legumes, wildflowers, and cereals. Seed mixes used for temporary sediment and erosion control shall consist of quick-growing species such as ryegrass, Italian ryegrass, or cereal grasses. The species used shall be suitable to the area and not compete with the permanently planted grasses.

[5] http://water.epa.gov/polwaste/npdes/stormwater/Stormwater-Pollution-Prevention-Plans-for-Construction-Activities.cfm

Mulch consisting of hay, straw, wood fiber, or other suitable materials will be placed evenly after the application of the seed mix to temporarily stabilize unprotected earth.
Water Quality AMM 5. Equipment Service/Maintenance–The SWPPP will require that any areas used for servicing and performing maintenance on construction equipment will be designated in locations away from streams, wetlands, and ponds. The contractor will submit a proposed plan designating staging areas, and this plan will be reviewed and approved by the engineer prior to construction. Materials that may leach pollutants will be stored under cover and out of the weather. Fuel tanks located on-site will have double containment systems and any fuels or other spills must be cleaned up immediately. Concrete or other material wash outs will be located in designated areas away from aquatic resources. All construction equipment will be maintained in proper mechanical condition so fuel, oil, and other pollutants do not get into water bodies during construction activities.

Water Quality AMM 6. Spill Plan–The SWPPP will include a spill plan.

Wetland/Stream Protection AMMs
For those projects that may result in wetland/stream impacts, the following measures should be applied:

Wetland/Stream Protection AMM 1. Establish and/or maintain 100-ft vegetative buffers with a sufficient number of canopy species around all permanent water bodies and perennial streams where possible to minimize erosion and sedimentation of water bodies. Intermittent streams should be buffered by 50 feet.

Wetland/Stream Protection AMM 2. Locate, design, construct, and maintain stream crossings to provide maximum erosion protection.

Wetland/Stream Protection AMM 3.Maintain existing road ditches, culverts, and turnouts to ensure proper drainage and minimize the potential for the development of ruts and mud holes and other erosion-related problems.

Wetland/Stream Protection AMM 4.Stabilize, seed, and mulch eroded roadsides and new road cuts with native grasses and legumes, where feasible, in a timely manner to minimize impacts to water bodies.

Wetland/Stream Protection AMM 5.Implement erosion and sediment controls where appropriate. Maintain protective vegetative covers over all compatible areas, especially on steep slopes. Where necessary, gravel, fabrics, mulch, riprap, or other materials that are environmentally safe and compatible with the location, may be used, as appropriate, for erosion control in problem areas.

Wetland/Stream Protection AMM 6.Erosion and sediment control measures will be inspected within 24 hours of a rain event and will be monitored and maintained throughout construction to ensure proper function.